

THE HELOTIALES OF INDIA—VII

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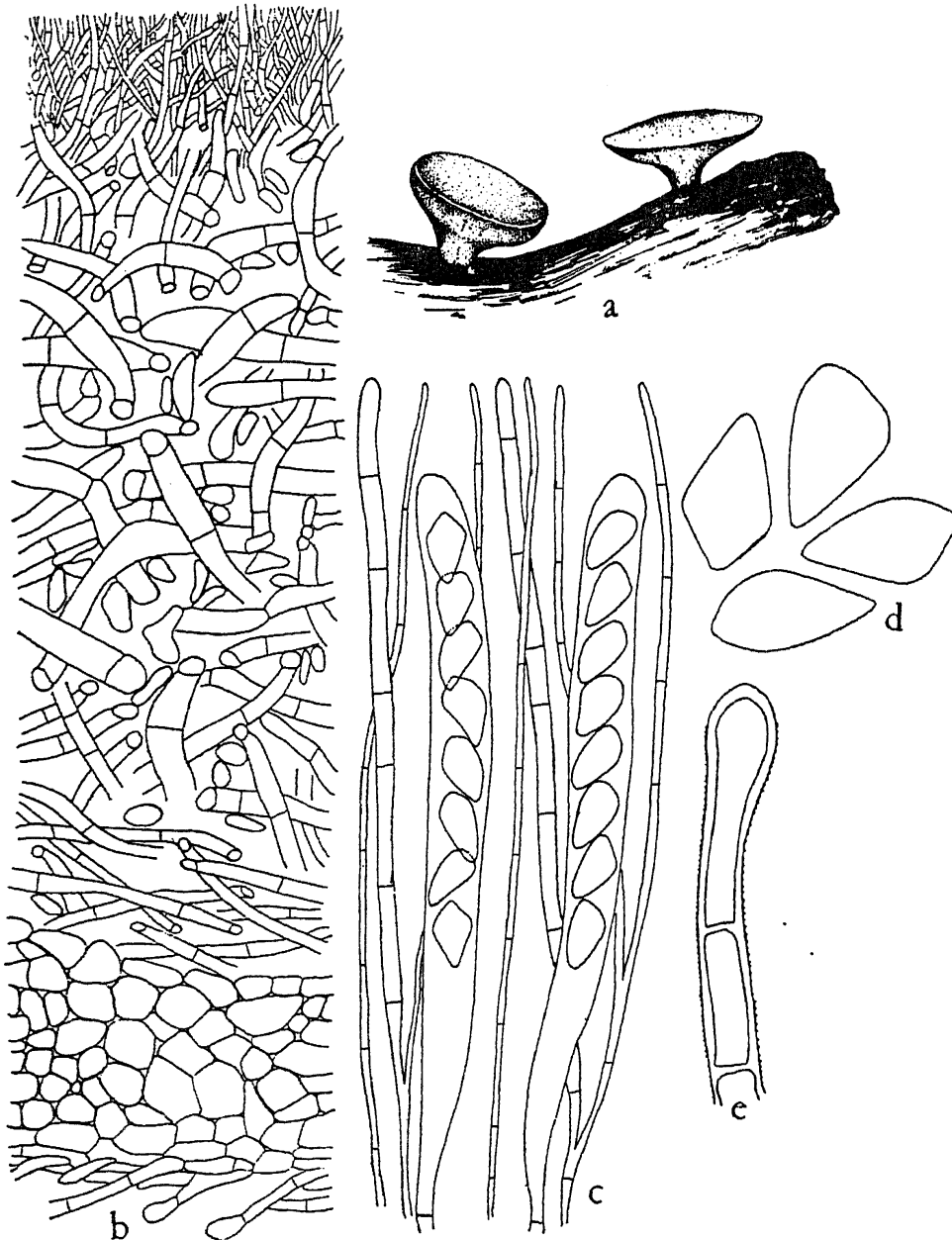
INTRODUCTION

THIS paper records four new species of Helotiales from the Mussoorie Hills (5,000–7,500 ft. altitude in the North-West Himalayas). The first six contributions on the series (1–6) give an account of 26 known and 7 new species. The fruit bodies have been described from living material and that preserved in alcohol-formalin. The numbers of the species are the serial number of this Helotioid flora. The type collections have been deposited in the Herbarium of the Botany Department, Panjab University, Chandigarh, and duplicate material in the Royal Botanic Gardens, Kew.

4. *Rutstroemia latispora* sp. nov. (Text-Fig. 1)

Apothecia sparsa, fusco-pallida aut pallida, cupula cyathoides dein dilatata, latit. 2.5 mm., extus farinoso-puberula, margine dentibus coronata, stipite concolore, aequali, altit. 0.33–2.8 mm., deorsum fuscescente, pilis sat sparsis brevibus obsita. Asci cylindraneo-clavati, octospori, $137\text{--}176 \times 10\text{--}12 \mu$, obturaculo jodo vix coerulescente; ascosporae uniseriatae, ovoideae vel subampullaeformes, rectae vel curculae, $10\text{--}15 \times 4.5\text{--}8 \mu$; paraphyses graciles, apicem versus vix vel leniter incrassatae, crassit circiter $1\text{--}2 \mu$ vel $3\text{--}5 \mu$; excipulo meduloso prosenchymatico; excipulo ectali textura angularis composita. Supra folia dejecta *Quercus incana* Mussoorie, 29-8-1960. Thind 447, Typus.

Apothecia up to 2.5 mm. in diameter and up to 3.5 mm. in height, shallow cupulate to repand, fleshy, regular, substipitate to short stipitate; external surface dirty white to light brown, tomentose; hyphae of the tomentum simple, subhyaline, straight or bent, $30\text{--}150 \times 2.5\text{--}4.4 \mu$, septate, slightly thick-walled, verrucose, the terminal cells clavate, $6.4\text{--}8.9 \mu$ wide; similar hyphae cohering in more or less triangular clusters to form the dentate margin of the apothecium; hymenium slightly concave to plane, dirty white to light brown, smooth; stipe $0.33\text{--}2.8 \times 0.23\text{--}0.38$ mm., concolorous with the external surface above and brown near the point of attachment, tomentose due to emergent hyphae (hyphae of the same type as on



TEXT-FIG. 1. *Rutstroemia latispora* Thind and Saini. (a) Apothecia, $\times 15$; (b) V.S. apothecium, $\times 400$; (c) asci and paraphyses, $\times 500$; (d) ascospores, $\times 1,150$; (e) surface hairs, $\times 1,150$.

the external surface). *Asci* $137-176 \times 10-12 \mu$, 8-spored, hyaline, cylindrical-clavate, tapering below gradually into a stem-like base, pore turning blue with iodine, apices obtuse. *Ascospores* $10-15 \times 4.5-8 \mu$, uniseriate, hyaline to subhyaline, overlapping to slightly separating, parallel to oblique, obovate, asymmetrical, with one side more convex than the other, non-septate, aguttate. *Paraphyses* septate, of two types, (i) broad, stout $3-5 \mu$ wide, hyaline to subhyaline, (ii) narrow, filiform, $1-2 \mu$ wide, hyaline. Both types of paraphyses are thin-walled and project up to 20μ above the asci tips.

Anatomy.—*Stipe* is differentiated into cortex and medulla; cortex up to 45μ thick, *textura angularis*, cells $7-29 \times 5-10\mu$; medulla up to 325μ thick, *textura intricata*, hyphae $2.6-3.8\mu$ wide. *Apothecium*: ectal excipulum up to 82μ thick, *textura angularis*, cells $9-32 \times 4.8-12.5\mu$, slightly thick-walled; medullary excipulum up to 325μ thick, prosenchymatous (*textura intricata*), hyphae $7-11\mu$ wide, branched and septate; hypothecium up to 33μ thick, small but distinct, densely *textura intricata*, hyphae much narrower as compared to the hyphae of the medullary excipulum, $1.2-2\mu$ wide.

On dead leaves (mostly on petioles, midrib and larger veins on both the surfaces of the leaves) of *Quercus incana* Roxb., India (Brewery Road, Mussoorie, August 29, 1960, No. 447, Typus).

This species comes near to *Rutstroemia petiolorum* (Rob.) White and *R. sydowiana* (Rehm.) White but can be differentiated from these by its fleshy apothecia, obovate asymmetrical, much broader ascospores and longer asci.

35. *Patinellaria hedychii* sp. nov. (Text-Fig. 2)

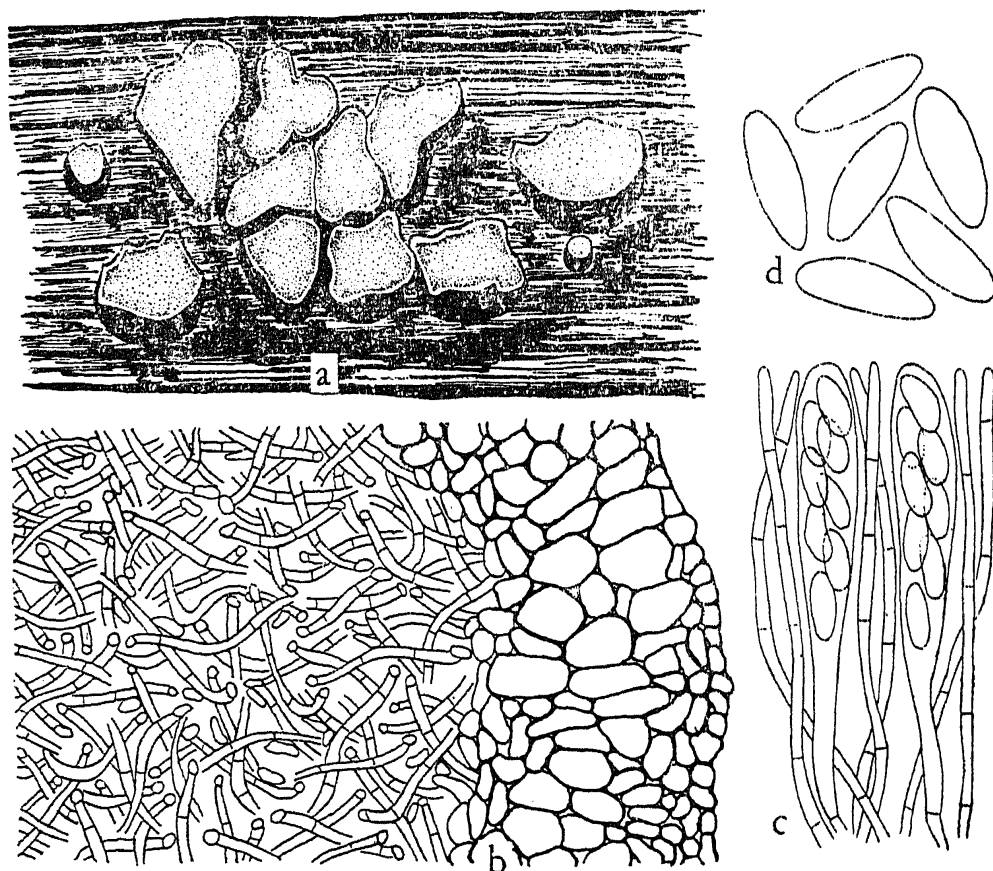
Apothecia plus minus aggregata, subconniventia, rotundata vel angulata, sessilia, planiuscula, marginata, sicca concava, nigra, latit. 1.1 mm., epithecio cinereo-pallescens, margine integro. Asci clavati, octospori, $82-100 \times 9-13\mu$, obturaculo jodo coerulescente; ascosporae biseriatae, ellipsoideae, rectae, $11-17 \times 3.8-6.4\mu$; paraphyses graciles, hyalinae.

Ad caules *Hedychii acuminati* circa Mussoorie, 27-8-1960. Thind 448, Typus.

Apothecia up to 1.1 mm. in diameter and up to 0.18 mm. in height, gregarious to densely gregarious, mostly in caespitose clusters, fleshy, shallow cupulate to almost repand, irregular, sessile, attached to the substratum by the central portion only; external surface black, smooth; margin entire to wavy; hymenium shallow concave to plane, smoky-white. *Asci* $82-100 \times 9-13\mu$, 8-spored, hyaline, clavate, tapering below gradually into a stem-like base, pore turning blue with iodine, apices obtuse. *Ascospores* $11-17 \times 3.8-6.4\mu$, biseriatae, occasionally biseriatae above and uniseriate below, overlapping, parallel to oblique, ellipsoid, non-septate, smooth, aguttate. *Paraphyses* $1.3-2.6\mu$ wide, hyaline, simple, septate, thin-walled, just levelling with the tips of asci.

Anatomy.—*Apothecium*: ectal excipulum up to 65μ thick, *textura angularis*, cells $5-19\mu$ wide, walls black, $0.6-1.2\mu$ thick, cells at the margin

radiating outward ; medullary excipulum textura intricata ; hypothecium indistinct.



TEXT-FIG. 2. *Patinellaria hedychii* Thind and Saini. (a) Apothecia, $\times 30$; (b) V.S. apothecium, $\times 500$; (c) asci and paraphyses, $\times 500$; (d) ascospores, $\times 1,150$.

On decaying stems and leaf-sheaths of *Hedychium acuminatum* Wall in a moist shady place under an Oak forest : India (Jabbar Khet Khud, Mussoorie, August 27, 1960, No. 448, Typus).

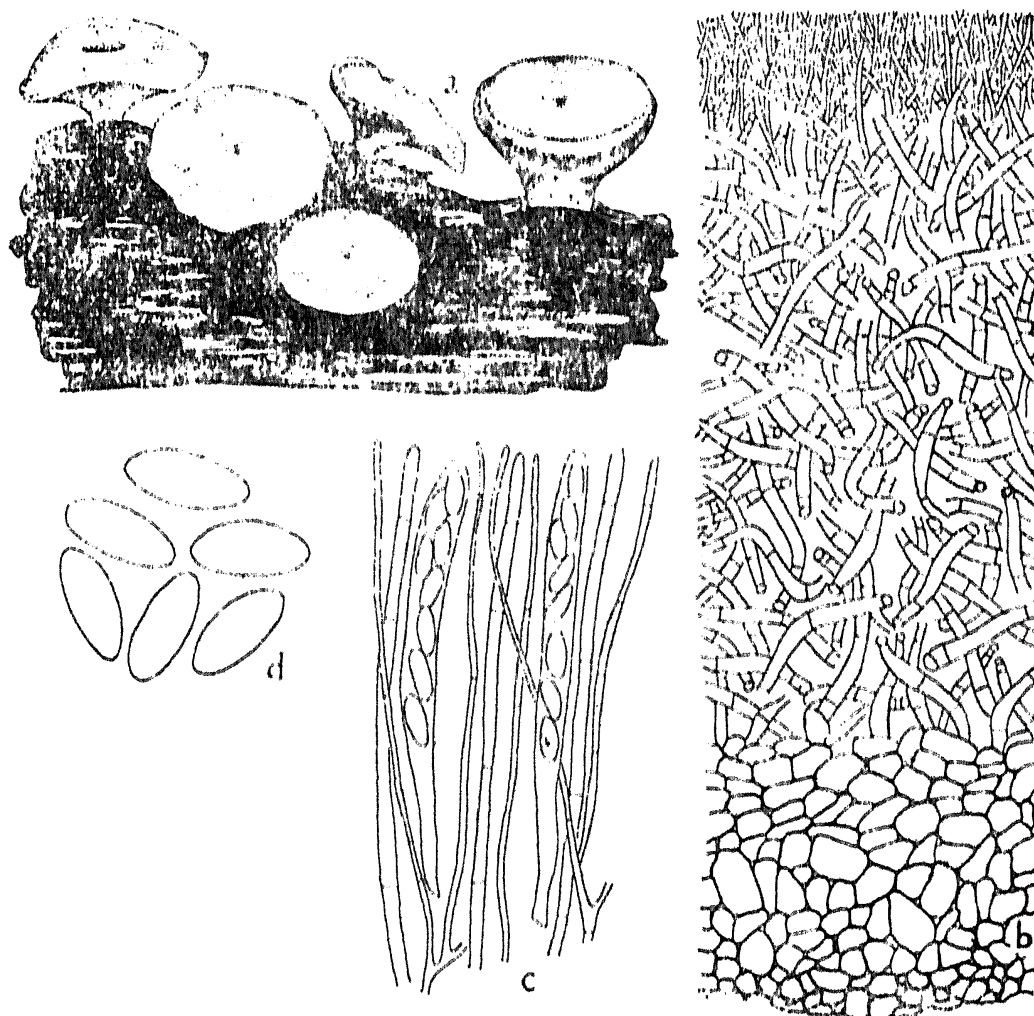
The species is characterized by small, black, irregular, sessile apothecia, non-septate, long ascospores, and septate filiform paraphyses. These features do not fit in any of the known species of the genus.

36. *Helotium inconspicuum* sp. nov. (Text-Fig. 3)

Apothecia gregaria, sessilia vel substipitata, cupulata, latit. 4 mm. griseo-fusca, glabra ; stipes brevis vel brevissimus, demum obliterated, crassus. Asci cylindraco-clavati, octospori, $91-120 \times 7-10 \mu$, obturaculo jodo coerulescente ; ascosporeae distichae vel oblique monostichae, ellipsoideae, $10-15 \times 5-6.8 \mu$, paraphyses graciles, crassit. circiter 1-2 vel 2.5-4.5 μ , hyalinae.

Ad lignum frondosarum prope Mussoorie, 19-9-1960. Thind 449, Typus.

Apothecia up to 4 mm. in diameter and up to 1.5 mm. in height, gregarious, shallow cupulate to discoid, fleshy, regular to irregular, substipitate; external surface darker concolorous as compared to the hymenium, smooth; margin entire, smooth; hymenium brown, concave; stipe up to 0.68×0.82 mm., cylindrical, concolorous with the external surface, smooth. *Asci* $91-120 \times 7-10 \mu$, 8-spored, hyaline, cylindric-clavate, tapering below gradually into a stem-like base, pore turning blue with iodine, apices obtuse. *Ascospores* $10-15 \times 5-6.8 \mu$, irregularly biseriate above, and uniseriate below, hyaline, overlapping at the ends, parallel to oblique, ellipsoid, non-septate, smooth. *Paraphyses* of two kinds, (i) narrow paraphyses $1-2 \mu$ wide, (ii) broad and stout paraphyses $2.5-4.5 \mu$ wide, both types hyaline individually, light brown in mass in the upper region and hyaline below, filiform, septate, thin-walled, just levelling with the tips of asci.



TEXT-FIG. 3. *Helotium inconspicuum* Thind and Saini. (a) apothecia, $\times 10$; (b) V.S. apothecium, $\times 400$; (c) asci and paraphyses, $\times 400$; (d) ascospores, $\times 900$.

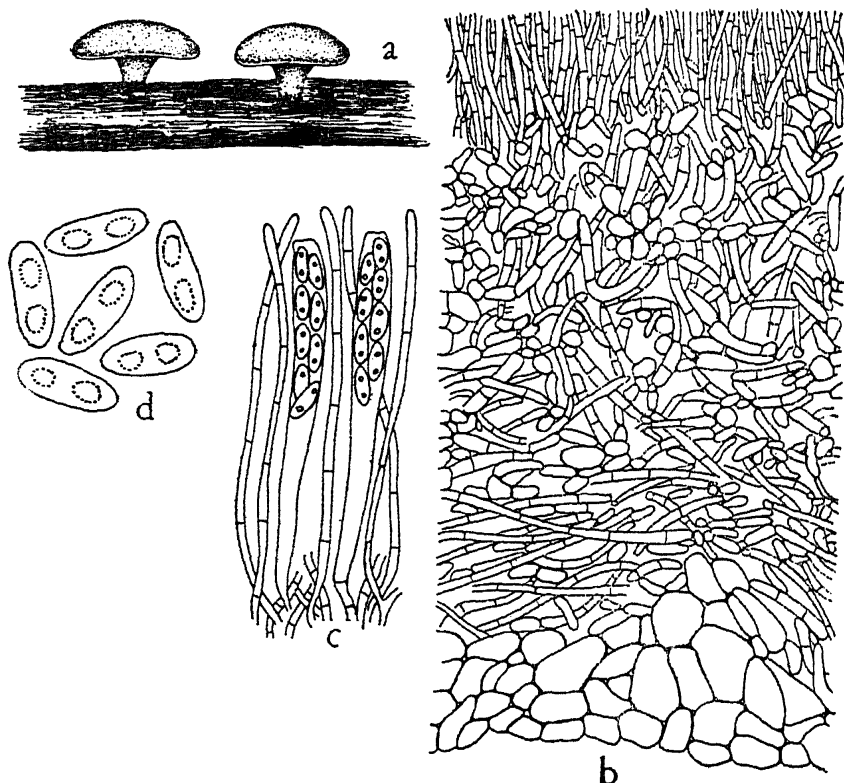
Anatomy.—*Stipe* is composed of cortex and medulla ; cortex up to 70μ thick, *textura angularis*, cells $6-20\mu$ in diameter, polygonal, outermost layers of the cells of the cortex thick-walled ; medulla up to 700μ thick, *textura intricata*, hyphae $1.5-5\mu$ wide, mostly running in upward direction. *Apothecium* : ectal excipulum up to 47μ thick, *textura angularis*, cells $6-20\mu$ in diameter, the outermost 1-3 layers of cells of ectal excipulum become thick-walled ; medullary excipulum up to 650μ thick, *textura intricata*, hyphae $2.2-3.8\mu$ wide, septate and branched ; hypothecium distinct, up to 38μ thick, densely *textura intricata*, hyphae $1-2\mu$ wide.

On dead angiospermic wood, under an Oak forest : India (Maghra to Dhanolti forest Road, Mussoorie Hills, September 19, 1960, No. 449 Typus).

The species would be conveniently referred to *Orbiliopsis* von Höhnelt non Sydow, were a legitimate name available for that genus. In the meantime it can find a place under the collective name *Helotium* auct. non Fries.

37. *Helotium cedricola* sp. nov. (Text-Fig 4)

Apothecia solitaria vel sparsa breviter stipitata, ochraceo-pallida, cupula concava, demum explanata, glabra, latit. 2 mm. Asci cylindracco-clavati,



TEXT-FIG. 4. *Helotium cedricola* Thind and Saini. (a) Apothecia, $\times 20$; (b) V.S. apothecium $\times 500$; (c) asci and paraphyses, $\times 500$; (d) ascospores, $\times 1,150$.

octospori, $73-94 \times 6-7 \mu$, obturaculo jodo vix coerulescente; ascosporae distichae, fusoido-oblongatae, guttulis plerumque 2 praeditae, $8-11 \times 2.6-4 \mu$; paraphyses graciles, crassit. $1.3-1.6 \mu$, apicem versus vix incrassatae. Supra acus *Cedri deodarae* putrescentes circa Mussoorie, 21-9-1960. Thind 450, Typus.

Apothecia up to 2 mm. in diameter and up to 1.23 mm. in height, solitary, usually one apothecium per *Cedrus* needle, occasionally up to 4, fleshy, subdiscoid to discoid, regular, short stipitate; external surface cream-coloured, smooth; margin entire, smooth; hymenium shallow concave to convex, concolorous with the external surface; stipe $0.28-0.61 \times 0.23-0.38$ mm., cylindrical, concolorous, not enlarged at the base. *Asci* $73-94 \times 6-7 \mu$, 8-spored, cylindric-clavate, tapering below gradually into a stem-like base, not turning blue with iodine, apices truncate. *Ascospores* $8-11 \times 2.6-4 \mu$, biseriate, rarely uniseriate, slightly overlapping, parallel to oblique, hyaline, ellipsoid, smooth, biguttate. *Paraphyses* $1.3-1.6 \mu$ wide, hyaline, filiform, not enlarged terminally, simple, septate, thin-walled, projecting up to 12μ above the asci tips.

Anatomy.—*Apothecium* ectal excipulum up to 48μ thick, textura angularis, cells $15-25 \times 6-13 \mu$, hyaline, thin-walled; medullary excipulum up to 145μ thick, textura intricata, hyphae $1.6-2.8 \mu$ wide; hypothecium distinct, up to 36μ thick, textura intricata, hyphae $1-1.6 \mu$ wide.

On decaying needles of *Cedrus deodara* Loud. under a Cedrus forest: India (Dhanolti, Mussoorie Hills, September 21, 1960, No. 450, Typus).

It differs from *H. advenulum* Phil. in having larger and convex apothecia and ascus pore not turning blue in iodine.

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